

WHAT IS CLAIMED IS:

1. A solventless thermosetting photosensitive via-filling material, which comprises:
one or more liquid epoxy resins;
one or more monomers;
one or more photo-initiators; and
one or more epoxy resin curing agents.
2. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said liquid epoxy resins comprise at least one of the compounds selected from a group consisting of bisphenol-A epoxy resins, bisphenol-F epoxy resins, mix of bisphenol-A and bisphenol-F epoxy resins, phenol Novolac epoxy resins, rubber-modified epoxy resins, cycloaliphatic epoxy resins, hydrogenated bisphenol-A epoxy resins, dimmer-modified epoxy resins, flexible EPU modified epoxy resins and other hetero epoxy resins.
3. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said monomers comprise at least one of the compounds selected from a group consisting of mono-functional monomer, difunctional monomer, trifunctional monomer and tetra & penta-functional monomer.
4. The solventless thermosetting photosensitive via-filling material according to claim 3, wherein said mono-functional monomer is selected from the group consisting of allyl methacrylate, tetrahydrofurfuryl methacrylate, 2(2-thoxyethoxy)ethyl acrylate, 2-phenoxyethyl acrylate, and isodecyl acrylate.
5. The solventless thermosetting photosensitive via-filling material according to claim 3, wherein said difunctional monomer is selected from the group consisting of tetraethylene glycol dimethacrylate, polyethylene glycol dimethacrylate, ethylene glycol dimethacrylate, triethylene glycol dimethacrylate, tetraethylene glycol diacrylate, triethylene glycol diacrylate and tripropylene glycol diacrylate.
6. The solventless thermosetting photosensitive via-filling material according to claim 3, wherein said trifunctional monomer is selected from the group consisting of trimethylolpropane trimethacrylate, trimethylolpropane triacrylate and tris(2-hydroxyethyl) isocyanurate triacrylate.

7. The solventless thermosetting photosensitive via-filling material according to claim 3, wherein said tetra & penta-functional monomer is selected from the group consisting of dipentaerythritol pentaacrylate, pentaerythritol tetraacrylate, di-trimethylolpropane tetraacrylate.
8. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said monomer is added to an amount of 5-50 parts by weight, based on 100 parts by weight of said liquid epoxy resin.
9. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said photo-initiator comprises free-radical photo-initiators.
10. The solventless thermosetting photosensitive via-filling material according to claim 9, wherein said free radical photo-initiator comprise at least one of the compounds selected from a group consisting of 2-methyl-1-[4-(methylthio)phenyl]-2-morpholinopropanone, 2-isopropyl thioxanthone, 2-hydroxy-2-methylphenylpropanone, 1-hydroxycyclohexyl phenylketone.
11. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said photo-initiator is added to an amount of 1-10 parts by weight, based on 100 parts by weight of said liquid epoxy resin.
12. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said epoxy resin curing agent comprises epoxy resin thermal curing agent.
13. The solventless thermosetting photosensitive via-filling material according to claim 12, wherein said epoxy resin thermal curing agent comprise at least one of the compounds selected from a group consisting of dicyandiamine, amidoamines, polysulfides, amines, polyamides, aliphatic amines, cycloaliphatic amines, aromatic amines, anhydrides, imidazoles, modified polyamine and Adeka EH-4337S.
14. The solventless thermosetting photosensitive via-filling material according to claim 13, wherein said imidazole is selected from a group consisting of 2-methylimidazole 2,4-diamino-6-(2'-methylimidazolyl-(1'))-ethyl-S-triazine, 2,4-diamino-6 [2'-methylimidazolyl-(1')] ethyl-S-triazine isocyanuric acid addition compound.

15. The solventless thermosetting photosensitive via-filling material according to claim 13, wherein said modified polyamine is selected from a group consisting of Adeka EH-4070S, Air Products Ancamine-2014FG.
16. The solventless thermosetting photosensitive via-filling material according to claim 1, wherein said epoxy resin curing agent is added to an amount of 1-60 parts by weight, based on 100 parts by weight of said liquid epoxy resin.
17. The solventless thermosetting photosensitive via-filling material according to claim 1, further comprising one or more inorganic fillers.
18. The solventless thermosetting photosensitive via-filling material according to claim 17, wherein said inorganic filler is selected from a group consisting of silicon dioxide, barium sulfate, mica and talcum powder.
19. The solventless thermosetting photosensitive via-filling material according to claim 18, wherein said inorganic filler is added to an amount of 0-200 parts by weight, based on 100 parts by weight of said liquid epoxy resin.
20. The solventless thermosetting photosensitive via-filling material according to claim 1, further comprising one or more organic adjuvants.
21. The solventless thermosetting photosensitive via-filling material according to claim 20, wherein said organic adjuvant comprises a de-foaming agent.
22. The solventless thermosetting photosensitive via-filling material according to claim 20, wherein said organic adjuvant comprises a thixotropic agent.
23. The solventless thermosetting photosensitive via-filling material according to claim 20, wherein said organic adjuvant comprises a leveling agent.
24. The solventless thermosetting photosensitive via-filling material according to claim 20, wherein said organic adjuvant comprises a rheological adjuvant.
25. The solventless thermosetting photosensitive via-filling material according to claim 20, wherein said organic adjuvant comprises a dye.
26. The solventless thermosetting photosensitive via-filling material according to claim 20, wherein said organic adjuvant is added to an amount of 0-50 parts by weight, based on 100 parts by weight of said liquid epoxy resin.